

XII. *Observations on Genera.* By H. T. STAINTON, Esq.

[Read December 1st, 1856.]

THERE are probably many persons who have hardly given any serious consideration to the nature of genera. A knowledge of species is no doubt the first and most important step the naturalist has to make, but yet as genera do exist, it is desirable that some clear conception should be attained, if practicable, of what constitutes a genus.

A genus is a collection of species which agree more or less rigorously in the possession of certain definite characters.

Combined with this agreement in structural character, we shall generally find a considerable degree of uniformity of habit.

A perfect uniformity in the structural character is not to be anticipated in any genus, and where by accident we do meet with it, it can only arise from such genera being extremely limited in extent, and the somewhat abnormal species belonging to them not having yet been discovered.

Just as we find from that infinite variety in nature that hardly two leaves of a tree are exactly similar in every respect, hardly two specimens of a species are precisely alike, so we should not be surprised to find, were the different species of a genus minutely examined, that there is more or less structural diversity amongst them.

The question, what amount of diversity of structure should necessitate the removal of a species from a genus, is of course always open to much discussion.

Manifestly it would not be desirable to have as many genera as species; if we had, we should entirely lose the object which we gain by the acceptance of genera. Say, for instance, we have a genus composed of twenty species: we are aware, if we know the name of any one species, that it is related more or less intimately to the remaining nineteen. But supposing the whole twenty are divided into as many genera: then, when we learn the name of a species, we learn nothing of its relations; we are obliged to put a second question—"What genus does it come next to?"

Now, if the genus cannot consist of species all mathematically agreeing in structure, and if it is found unadvisable to create new

genera for every slight discrepancy of structure, it is evident that we have a certain *carte blanche* allowed us, and there is an *elasticity*, so to speak, about genera.

Supposing again in our genus of twenty species there are found some half dozen that agree amongst themselves in the development of some particular organ, and have so strong a family likeness that they are at once recognised as forming a group; here we might, without causing a difficulty, create these species into a genus;—but whether that genus would eventually stand is a point which would remain for future solution when new species occurred. If such new species were found agreeing rigorously with the characters on which the new genus was constituted, such species would tend to confirm the stability of the genus; but supposing, on the other hand, any new species that might be met with formed connecting links between the new genus that had been erected, and the remaining species of the old genus from which it had been separated, the new discoveries might in this way completely bridge over the chasm between the two genera and again reunite them into one.

Though it is an evil to have many genera consisting only of single species, this cannot always, in the gradual progress of science, be avoided. Sometimes species are met with so peculiar in some one or more of their organs that they cannot be referred to any known genera, though it will sometimes happen that the discovery of further species may eventually show that such insects are only the extreme and abnormal forms of existing genera.

Hence it will be found, that, as we progress in the discovery of species, some new genera will be created, and some genera will be merged into others, perhaps again after a time to be revived as distinct. A more rigorous examination of structure, and a closer acquaintance with the habit of species, will often lead to the formation of new genera, irrespective of the discovery of new species.

The superficial observer will be apt to complain of this increase in the number of genera as an unnecessary complication of affairs—whereas, in point of fact, it is in reality a step towards their simplification. For if several species agree *inter se* in the possession of several characteristics, it is simpler to have them as a distinct genus than as a group, somewhat isolated, in a larger genus.

The fact of our having a series of genera, each consisting of only a single species, does not necessarily imply something defective in our notions of genera, because it may happen that each

of these single species represents the type of one extensive genus, but of which the other species are unknown to us, not occurring in the restricted area to which our investigations have been confined.

That the limits of genera are not always closely defined, that they shade off as it were imperceptibly at the edges, is nothing more than we might have anticipated. Rigidly defined mathematical genera, with no intermediate species, exist only as phantoms in the brain of the systematizer, and, brought face to face with the facts of nature, such phantoms vanish.

I do not profess to have propounded anything novel in the preceding observations, and I believe it will be found that what I have said is so exactly similar to the remarks on the same subject by Mr. Wollaston in his Treatise "On the Variation of Species," that on that very account it may appear still less necessary to intrude the subject upon the Society. My object, however, has been to bring the subject primarily before the notice of some of the readers of the Society's Transactions, and with this view I have purposely been as brief and as explicit as I could.

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XIII. *Observations on the Difficulties attending the Discrimination of the Species of the Genus Stylops.* By  
FREDERICK SMITH, Esq.

[Read May 5th, 1856.]

THE morning of the 16th of April, 1856, held out a promise of a good day for collecting bees, and so it proved, as my son on that day obtained not less than fifty specimens of *Andrenidæ*, on Hampstead Heath, in the finest possible condition, together with some examples of *Nomada signata*, *N. borealis* and *N. Lathburiana*. His magazine was a bottle containing bruised laurel, for miscellaneous collecting, but for any specimens of particular interest, I furnished him with pill boxes, of the latter kind he obtained the sexes of *Andrena fulva*, taken "in coitu," and a pair of *Andrena*